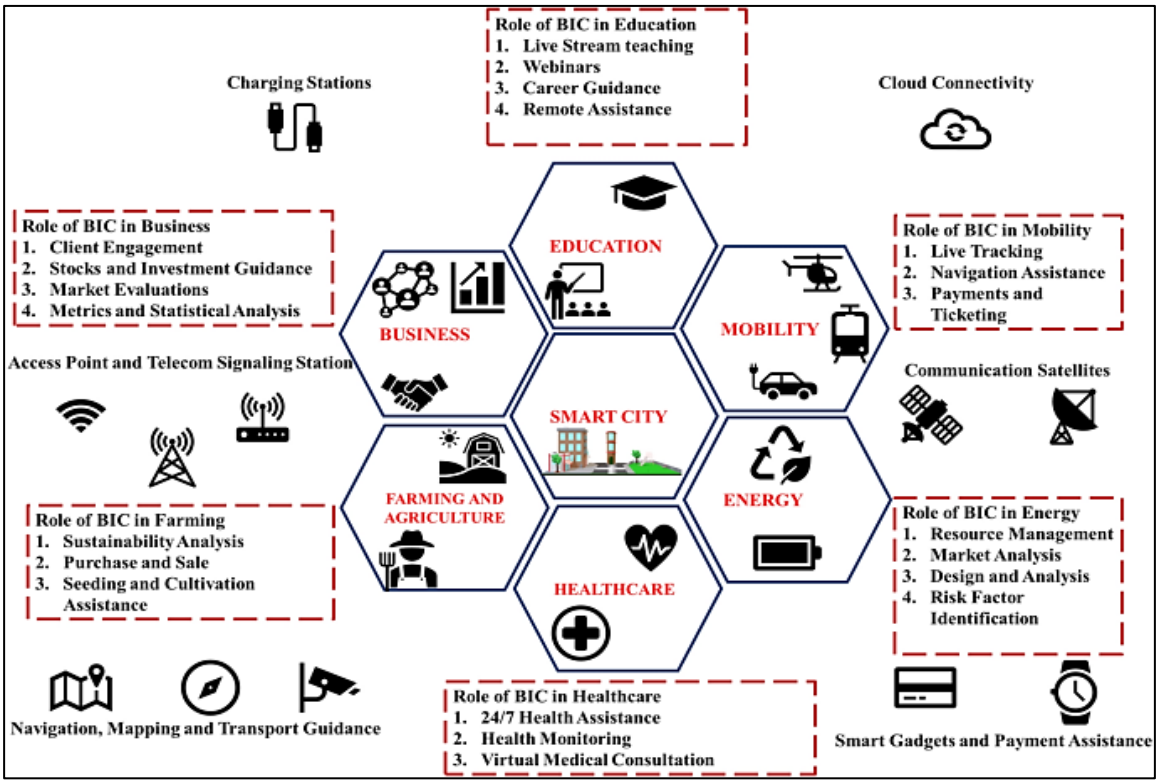
INSTITUTE OF MANAGEMENT & INFORMATION TECHNOLOGY

IOT

Internet of Things

FACHSHEET



COMPACT

BLENDED ONLINE LEARNING

IOT Internet of Things

Course: Internet of Things
Code: IOT
Year: 2025 +
Start: OPEN

NOVA accredited programme

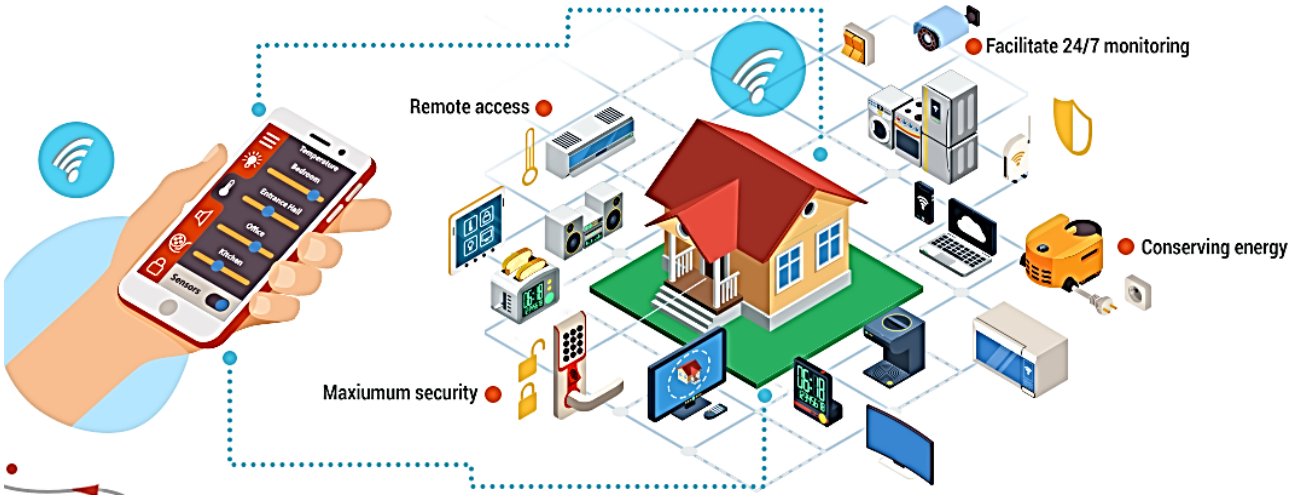
MINISTERIE VAN ONDERWIJS, WETENSCHAP EN CULTUUR ERKEND

Trainer: Ing. Johan Kalpoe BSc
Promotor: Dr. Ing. Urwin W. Staphorst
Status: Nova Accredited programme
Duration: 30 hrs. Blended Training

Trainings Guide Summary

Topics: IOT architecture, IOT ecosystem, cloud computing & IOT, IOT taxonomy, data preprocessing & communication, middleware, IOT application, Bluetooth, Wi-Fi, ZigBee, 6LoWPAN, RFID, NFC, cellular IOT, Arduino, Raspberry pi, IOT cost effective solution, Microsoft Azure IOT hub services, IOT biometric systems, smart agriculture, smart home, smart city, IOT retail & supply chain, healthcare, logistics, industrial automation , disaster management, IOT security vulnerabilities, smart gateways, Thinker Cad, ThingSpeak, fog computing, Artificial intelligence.

Example of smart home automation



Job Perspectives

- IOT-home automation engineer
- Project engineer indutrial IOT'
- IOT cloud engineer
- Smart connected systems and devices
- IOT security engineer
- IOT business consultant
- IOT intelligence analyst
- IOT designer/ developer

1. Introduction

The Internet of Things (IOT) involves connecting everyday things embedded with electronic, software, and sensors to the internet enabling them to collect and exchange data.

During this course students will learn how IOT is used in business and IT applications to:

1. Beter manage their businesses
2. Increase productivity and efficiency of business operations
3. Create new business models and revenue streams
4. Easily and seamlessly connecting the physical business world to the digital world to drive quick time to value.

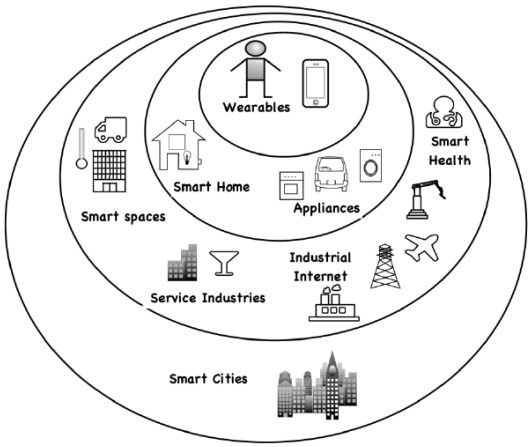
2. Training Overview

This course is designed primarily for upcoming Business IT professionals with a wide overview of how IOT systems can increase productivity, manageability, efficiency and revenue of business over the world.

Specific Learning Outcomes

The student is able to:

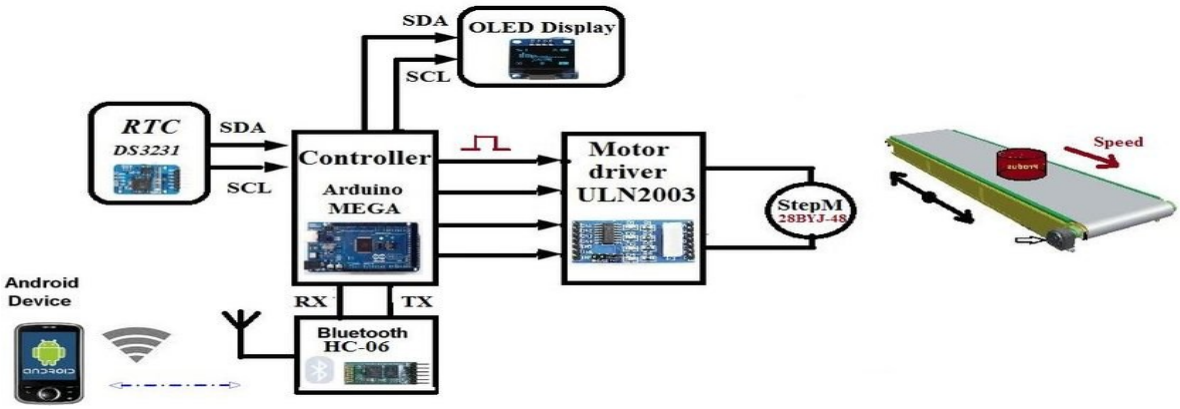
- Explain the different IOT architectures, taxonomies, ecosystems:
  - The student can identify the different layers (transport, processing, business) on which an IT device works.
  - They can implement cloud a fog computing architecture
  - They can distinguish between the IOT use cases (wearables, smart home, appliances, smart health smart spaces, service industries, industrial Ethernet, Smart Cities)



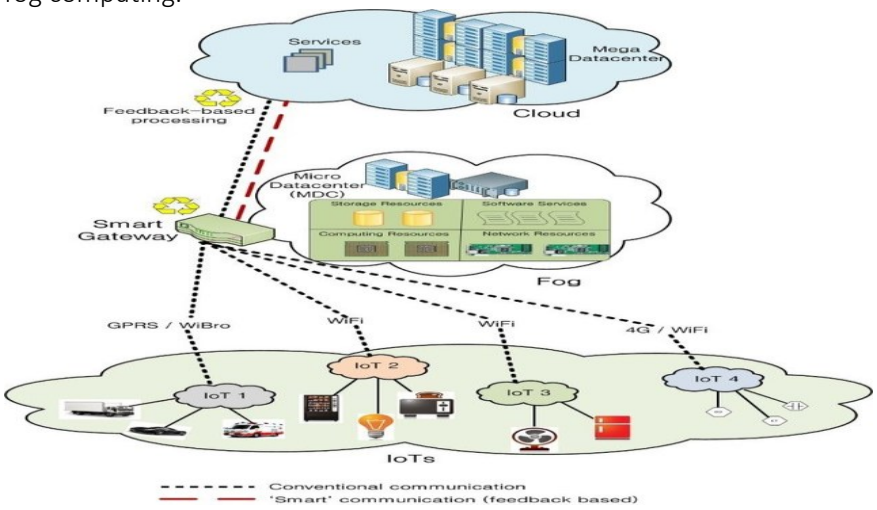
- Identify a process that can be automated using an IOT application to increase productivity, manageability, efficiency and revenue of business. The student will be able to identify situations that can ease human effort and productivity and come up with an IOT solution.

- Select the appropriate network architecture, wireless sensors, coordinators /gateway for a IOT device. The student will be able to select the components to create an IOT application. For example, for industrial applications IOT components/devices should comply to industrial standards wind, water, dust, EMC proof while for home and office applications the standards are less strict.

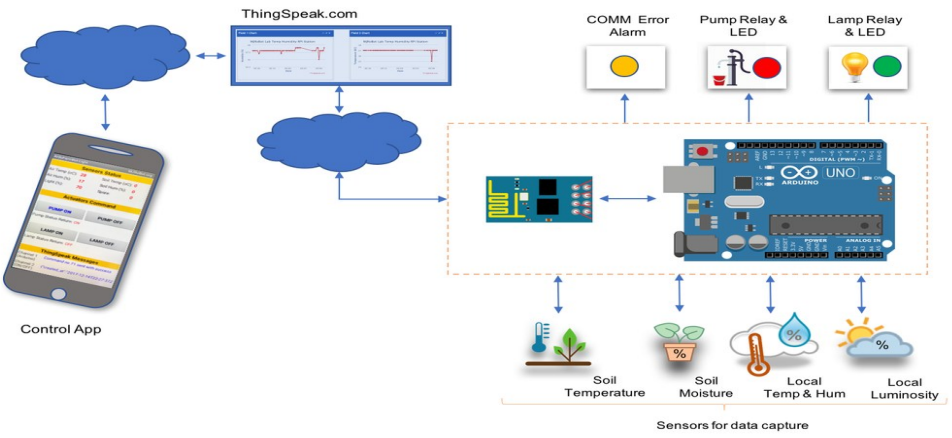
- Explain the hardware and software features of commonly used IOT boards such as Raspberry pi and Arduino. Students will be able to select a suitable IOT board and make connections with the required modules to gather, log, visualize and send data to a cloud platform.



- Explain the features of smart gateways and fog computing in IOT. Students will be able to find solutions to preprocess and trim data before ending it to the cloud using smart gateways and fog computing.



- Design a IOT circuit in Thinker Cad (simulation platform) and analyze data using ThingSpeak (cloud platform). Students will be able virtually create and program an Arduino IOT boards without the need for physical hardware. They will be able to run the circuit and send data to a cloud platform. This data can be analyzed and visualized from live data streams from the cloud using ThingSpeak.



3. Entry Level

Basic prior knowledge is needed about wireless access points, routing, & networking.
All knowledge needs to realize the final project will be provided during the lectures.

During this training, participants can expect:

- Lectures with all the knowledge needed to start the project
- Practical (hands-on) projects
- Design techniques and data analysis techniques
- Paper writing
- Oral presentation

Supplementary research (hours) to be completed at the student's convenience. The course is concluded by means of the final paper, (oral) demo presentation and (oral) theoretical exam.

4. Required Training Materials

Lecture slides and below mentioned technical requirements.
Technical Requirements:

Laptop (BYOD) — i5+ / 16+ GB memory / Free Disk space
500 GB + for data processing

Optional not obligatory
Arduino Uno/Mega or Raspberry pi

Accreditation/ Certification/ Recognition

IOT is an integral part of the IMIT education program accredited by the "National Orgaan voor Accreditatie" (NOVA). The successful completion of the course entitles an IMIT (sub) certificate. IMIT is recognized by The Ministry of Education, Science and Culture (MINOWC).

INVESTMENT USD 1400 ALL IN

SUBJECT TO CHANGE

Dr. Ing. Urwin W. Staphorst MBA